



CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005



Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Shape.T/2017-18

09.01.2018

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of Work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/141/2017-18 Dated: 21.12.2017
* Sample ID	: Hot Mix Plant, Bangalore
Technical Reference	: IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	: Bituminous Macadam
Date of Testing	: 09.01.2018



Sl.No.	Description	Result
1	Flakiness Index	12.45%
2	Elongation Index	13.60%
3	Combined Flakiness & Elongation Index	26.05%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

Note:

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⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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#23/14, 7th Cross, 3rd Stage, 4th Block,
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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಧೀನದಲ್ಲಿ
ಶಿಬಿರಕ್ಕೆ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ರಸ್ತೆ ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು



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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Stripping/2017-18

10.01.2018

TEST REPORT ON STRIPPING VALUE OF ROAD AGGREGATE (STATIC IMMERSION TEST)

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/141/2017-18 Dated: 21.12.2017
Technical reference	: IS: 6241
* Type of Mix	: Bituminous Macadam
Date of Testing	: 10.01.2018



Type of binder : 60/70
 Percentage of binder used : 5.0% by wt.
 Total weight of aggregate : 200 g
 Total weight of binder : 10.0 g
 Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.30	96.70
2	3.2		
3	3.4		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Sp_Wa/2017-18

10.01.2018

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of Work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/141/2017-18 Dated: 21.12.2017
Technical reference	: IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	: Bituminous Macadam
Date of Testing	: 10.01.2018



Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	$W_1 g$	2002	2003	2004	
2	Weight of basket suspended in water	$W_2 g$	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s g$	1252	1253	1254	
4	Weight of saturated surface dry aggregate in air	$W_3 g$	2006	2007	2008	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_s) g$	754	754	754	
6	Weight of oven dried aggregate	$W_4 g$	1996	1998	2000	
7	Specific Gravity	$W_4 / (W_3 - W_s)$	2.647	2.650	2.653	2.650
8	Apparent Specific gravity	$W_4 / (W_4 - W_s)$	2.683	2.682	2.681	2.682
9	Water Absorption	$((W_3 - W_4) * 100) / W_4$	0.50%	0.45%	0.40%	0.45%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Bitumen/2017-18

10.01.2018

TEST REPORT ON BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/141/2017-18 Dated: 21.12.2017
* Sample ID	: For UGD trenches, Ward No.13
Technical Reference	: IRC:SP:11-1984
Date of Testing	: 10.01.2018



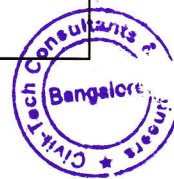
BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	483	482
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17	18.00
7. Bitumen content in %	3.40	3.60
8. Average	3.50	

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Gradation/2017-18

10.01.2018

TEST REPORT ON GRADATION OF BITUMINOUS MACADAM MIX

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WW/141/2017-18 Dated: 21.12.2017
* Sample ID	: For UGD trenches, Ward No.13
Technical Reference	: IS:2386 and IRC:SP:11-1984
Date of Testing	: 10.01.2018



GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	35.26	7.30	7.30	92.70	90-100
13.2	81.23	16.82	24.12	75.88	56-88
4.75	256.4	53.08	77.20	22.80	16-36
2.36	52.32	10.83	88.04	11.96	4-19
0.3	16.21	3.36	91.39	8.61	2-10
0.075	10.22	2.12	93.51	6.49	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0.00	100	100
19	30.25	6.28	6.28	93.72	90-100
13.2	81.22	16.85	23.13	76.87	56-88
4.75	255.6	53.03	76.16	23.84	16-36
2.36	50.22	10.42	86.57	13.43	4-19
0.3	25.65	5.32	91.90	8.10	2-10
0.075	5.39	1.12	93.01	6.99	0-8

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Agg.G/2017-18

10.01.2018

TEST REPORT ON GRADATION OF AGGREGATES

* Customer	: Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: Technical Manager (West), KRIDL, Bangalore.
* Name of work	: Improvements UGD line in Ward No.13, Mallasandra, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/141/2017-18 Dated: 21.12.2017
* Sample ID	: Hot Mix Plant, Bangalore
Technical Reference	: IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	: Bituminous Macadam
Date of Testing	: 10.01.2018



Total Weight of Sample: 5250 gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-4 specification
19	350	6.67	6.67	93.33	90-100	
13.2	1560	29.71	36.38	63.62	56-88	
4.75	1680	32.00	68.38	31.62	16-36	
2.36	975	18.57	86.95	13.05	4-19	
0.3	250	4.76	91.71	8.29	2-10	
0.075	130	2.48	94.19	5.81	0-8	

Total Weight of Sample: 5350 gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-4 specification
19	310	5.79	5.79	94.21	90-100	
13.2	1520	28.41	34.21	65.79	56-88	
4.75	1640	30.65	64.86	35.14	16-36	
2.36	930	17.38	82.24	17.76	4-19	
0.3	525	9.81	92.06	7.94	2-10	
0.075	130	2.43	94.49	5.51	0-8	

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